

ORIGINAL

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COMMENTS:

**DOES NOT CONTAIN CBI**

MA# 337511



DuPont Haskell Global Centers  
for Health and Environmental Sciences  
1090 Elkton Road, P.O. Box 50  
Newark, DE 19714-0050

August 15, 2011

Via Federal Express

Document Processing Center (Mail Code 7407M)  
Room 6428  
Attention: 8(e) Coordinator  
Office of Pollution Prevention and Toxics  
U.S. Environmental Protection Agency  
1201 Constitution Ave., NW  
Washington, DC 20004



Dear 8(e) Coordinator:

**Multi-component Mixtures containing a Modified Ethylene/Methyl Acrylate Copolymer and a Butylene/  
Phthalate/Poly(Alkylene Ether) Phthalate Copolymer**

This letter is to inform you of allegations of certain health effects (see details below) reported to have been experienced by some workers and office staff during batch processing (involving polymer melt extrusion, compounding, devolatilizing and/or packaging) of certain polymer mixtures described as engineering thermoplastic vulcanizates (ETPV). Effects were reported based on worker recollection of prior events.

ETPV includes a broad range of multi-component polymer mixtures containing a modified ethylene/methyl acrylate copolymer, a butylene/ phthalate/poly(alkylene ether) phthalate copolymer, lubricants, and stabilizers; for some grades, carbon black, non-halogenated flame retardant, and caprolactam may be added. The Material Safety Data Sheet (MSDS) for a representative ETPV grade that contains carbon black is included with this letter.

Effects alleged to have been experienced by workers included: skin rashes; mouth blisters; eye, nasal, and/or throat irritation; sneezing; nausea, headaches, trouble swallowing, odd smell in nose, red welts on face, and dizziness. Effects appear to be limited to individuals (workers and office personnel) during or shortly after thermal processing of ETPV polymer (ie, inhalation of thermal decomposition products) and/or handling (ie, direct dermal contact) of ETPV resin products. The majority of effects were alleged to resolve within several hours but some effects, notably skin rashes, were alleged to have persisted for weeks to months. The same individuals who also repeatedly melt-processed ETPV reported similar health allegations during the repeat events.

The alleged effects are consistent with the reported hazards of the major ETPV thermal decomposition products, notably, tert-butanol (CAS 75-65-0), methyl acrylate (CAS 96-33-3), tetrahydrofuran (CAS 109-99-9), 2,5-dimethyl-3-hexyne-2,5-diol (CAS 142-30-3), methanol (67-56-1), acetaldehyde (75-07-0), and caprolactam (CAS 105-60-2). Comparable effects are reported in the ETPV MSDS (copy attached). The MSDS also identifies the need for adequate ventilation (general and local exhaust ventilation) to prevent any emitted gases and fumes from accumulating in the work place and to maintain exposures below acceptable limits during ETPV melt processing. Workplace area and personal air sampling has been conducted on a subset of five of these off gases, namely tetrahydrofuran, t-butanol, methyl acrylate, 2,5-dimethyl-3-hexyne-2,5-diol and caprolactam, for evaluating the adequacy of workplace ventilation. Occupational exposure limits (OEL), exist for four of the five monitored substances; no known OEL exists for 2,5-dimethyl-3-hexyne-2,5-diol. Although measured air concentrations of four major ETPV off gases were below their respective DuPont or the ACGIH OELs, worker allegations of respiratory and/or dermal irritation were still reported for some subsequent batches of ETPV production. It is

**CONTAINS NO CBI**



possible that ETPV off gasses *in toto*, other known ETPV off gasses, such as 2,5-dimethyl-3-hexyne-2,5-diol or other ETPV thermal decomposition products may have been involved in the health allegations.

DuPont has implemented changes in its workplace handling procedures and is evaluating additional workplace engineering controls to further reduce exposures when processing ETPV.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Satheesh Anand', with a stylized flourish at the end.

S. Satheesh Anand, Ph.D., DABT  
Senior Research Toxicologist

SSA/SS: clp  
(302) 366-5314

# Material Safety Data Sheet



## **DUPONT™ ETPV 60A01HSL BK001 engineering thermoplastic vulcanizates**

Version 2.0

Revision Date 12/06/2010

Ref. 130000021040

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

### **SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name	:	DUPONT™ ETPV 60A01HSL BK001 engineering thermoplastic vulcanizates
MSDS Number	:	130000021040
Manufacturer	:	DuPont 1007 Market Street Wilmington, DE 19898
Product Information	:	1-800-441-7515 (outside the U.S. 1-302-774-1000)
Medical Emergency	:	1-800-441-3637 (outside the U.S. 1-302-774-1139)
Transport Emergency	:	CHEMTREC: 1-800-424-9300 (outside the U.S. 1-703-527-3887)

### **SECTION 2. HAZARDS IDENTIFICATION**

#### Potential Health Effects

Exposure to dusts or the thermal decomposition products of this compound from heating may cause eye irritation with discomfort, tearing, or blurring of vision; or irritation of the upper respiratory passages, with coughing and discomfort.

Ingestion is not a likely route of exposure.

Following is known regulatory classification information on isolated substances.

#### Skin

Butylene Phthalate/Poly(AI kylene Ether) Phthalate Copolymer	:	May irritate skin. Contact with hot/molten material can cause burns.
tert-Butanol	:	May irritate skin.
Methyl acrylate	:	Causes skin irritation. The material may be absorbed through the skin., May cause:, Irritation with discomfort or pain, redness or rash, itching, swelling, blisters, cracking or peeling of skin, May cause sensitization by skin contact..

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- Tetrahydrofuran : May cause skin irritation.
- 2,5-Dimethyl-3-Hexyne-2,5-diol : May irritate skin. May cause sensitization by skin contact.
- Methanol : May irritate skin.  
May cause: Temporary, Blurred vision.  
May cause: Blindness
- Acetaldehyde : May irritate skin.
- Caprolactam : May cause skin irritation. May cause sensitization by skin contact.

### Eyes

- Butylene Phthalate/Poly(AI kylene Ether) Phthalate Copolymer : Dust may cause: Eye irritation
- Carbon black : Particulate matter may cause: mechanical irritation with tearing, pain or visual impairment
- tert-Butanol : Causes eye irritation.
- Methyl acrylate : Causes eye irritation. May cause permanent eye injury., Risk of serious damage to eyes..
- Tetrahydrofuran : Causes eye irritation. Risk of serious damage to eyes., May cause irreversible eye damage..
- 2,5-Dimethyl-3-Hexyne-2,5-diol : May irritate eyes.
- Methanol : Causes eye irritation.
- Acetaldehyde : Causes eye irritation.
- Caprolactam : May cause eye irritation.

### Inhalation

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Butylene Phthalate/Poly(AI kylene Ether) Phthalate Copolymer	: Dust may cause: Respiratory tract irritation
Carbon black	: May cause respiratory impairment and lung damage.
tert-Butanol	: May cause respiratory tract irritation. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.
Methyl acrylate	: Causes respiratory tract irritation.
Tetrahydrofuran	: Causes respiratory tract irritation. May cause:, Central nervous system depression with dizziness, confusion, incoordination, drowsiness, or unconsciousness..
Methanol	: May cause respiratory tract irritation. May cause: Temporary, Blurred vision. May cause: Blindness
Caprolactam	: Causes respiratory tract irritation. May cause:, eye effects, Central nervous system depression, dizziness, confusion, incoordination, drowsiness, or unconsciousness.
Ingestion	
Butylene Phthalate/Poly(AI kylene Ether) Phthalate Copolymer	: Effects due to ingestion may include: Gastrointestinal discomfort
tert-Butanol	: May cause: Irritation of mucous membranes, Nausea, Discomfort, Headache, Weakness.
Methyl acrylate	: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

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Methanol	:	May cause: Gastrointestinal discomfort, Nausea, Vomiting, Diarrhoea, Central nervous system depression, Liver effects. May cause: Temporary, Blurred vision. May cause: Blindness	
Caprolactam	:	May cause: Liver damage, Gastrointestinal effects.	
Repeated exposure Tetrahydrofuran	:	Limited evidence of a carcinogenic effect.	
Methanol	:	Blindness Liver effects Central nervous system effects nerve damage Kidney effects May cause harm to the unborn child.	
Caprolactam	:	Central nervous system effects	
Target Organs			
Carbon black	:	Lungs	
Methyl acrylate	:	Respiratory Tract	
Tetrahydrofuran	:	Respiratory Tract Central nervous system	
Methanol	:	Eyes Liver Nervous system Kidney	
Caprolactam	:	Liver Central nervous system	
Carcinogenicity Material	IARC	NTP	OSHA
Carbon black	2B		

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

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Component	CAS-No.	Concentration
Modified ethylene/methyl acrylate copolymer		>60%
Butylene Phthalate/Poly(Alkylene Ether) Phthalate Copolymer		<30 %
Multipolymer Resin		<5 %
Lubricants, stabilizers		<3 %
Carbon black	1333-86-4	<1 %

Additives in this product do not present a respiration hazard unless the product is ground to a powder of respirable size and the dust is inhaled. All dusts are potentially injurious to the respiratory tract if respirable particles are generated and inhaled.

Fumes evolved at recommended processing conditions may include the following:

tert-Butanol	75-65-0	
Methyl acrylate	96-33-3	
Tetrahydrofuran	109-99-9	
2,5-Dimethyl-3-Hexyne-2,5-diol	142-30-3	
Methanol	67-56-1	



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Acetaldehyde	75-07-0	
Caprolactam	105-60-2	

**SECTION 4. FIRST AID MEASURES**

- Skin contact : In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash contaminated clothing before re-use. Cool skin rapidly with cold water after contact with molten material. Do not peel polymer from the skin. Obtain medical treatment for thermal burn.
- Eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.
- Inhalation : Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- Ingestion : Not a probable route of exposure. However, in case of accidental ingestion, call a physician.

**SECTION 5. FIRE-FIGHTING MEASURES**

- Flammable Properties
- Flash point : not applicable
- Fire and Explosion Hazard : Combustible . Large molten masses may ignite spontaneously in air. Water quenching is good practice. Minimize the generation and accumulation of dust. Failure or malfunction of temperature control systems on processing equipment, such as extruders, may create explosion hazards. Hazardous combustion products may include: (see also section 10) Carbon monoxide, Carbon dioxide
- Suitable extinguishing media : Water, Foam, Dry chemical, Carbon dioxide (CO2)

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Firefighting Instructions : Wear self-contained breathing apparatus and protective suit.  
Evacuate personnel and keep upwind of fire.

### **SECTION 6. ACCIDENTAL RELEASE MEASURES**

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel) : Spilled material is a slipping hazard.  
Spill Cleanup : Sweep up to prevent slipping hazard.  
Accidental Release Measures : Do not discharge to streams, ponds, lakes or sewers.

### **SECTION 7. HANDLING AND STORAGE**

Handling (Personnel) : When opening containers, avoid breathing vapours that may be emanating. Do not breathe vapours or fumes that may be evolved during processing. Wash hands thoroughly after handling.  
Storage : Potentially irritating gasses can accumulate in the headspace of closed containers. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in an area equipped with sprinklers.

### **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Engineering controls : General mechanical ventilation is normally adequate but use local exhaust where necessary to maintain exposures below acceptable limits. Use local exhaust to completely remove vapors and fumes liberated during hot processing from the work area. See Bulletin "Proper Use of Local Exhaust Ventilation During Processing of Plastics".  
Personal protective equipment  
Respiratory protection : A respiratory protection program that meets country requirements must be followed whenever workplace conditions warrant respirator use. Consult the respirator manufacturer to determine the appropriate type of equipment for a

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given application. Observe respirator use limitations specified by the manufacturer. Consult the OSHA respiratory protection information located at 29CFR 1910.134. Use a positive pressure air supplied respirator if exposure levels are not known or there are any other circumstances where air purifying respirators may not provide adequate protection.

- Hand protection** : Material: Chemical-resistant gloves  
Additional protection: Wear leather or cotton gloves when grinding, sawing, routing, drilling or sanding., When handling hot material, use heat resistant gloves.
- Eye protection** : Wear safety glasses with side shields. Wear tightly fitting chemical splash goggles and face shield when possibility exists for eye and face contact due to spattering or splashing of molten material.
- Skin and body protection** : If there is a potential for contact with hot/molten material wear heat resistant clothing and footwear.

### Exposure Guidelines

#### Exposure Limit Values

DUPONT™ ETPV 60A01HSL BK001 engineering thermoplastic vulcanizates  
Dust (inhalable and respirable fraction)

TLV	(ACGIH)	10 mg/m3 TWA Inhalable particles. 3 mg/m3 TWA Respirable particles.
PEL:	(OSHA)	5 mg/m3 TWA Respirable fraction.
	Remarks	All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.
		15 mg/m3 TWA Total dust. tert-Butanol
AEL *	(DUPONT)	100 ppm 15 minute TWA
TLV	(ACGIH)	100 ppm


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REL	(NIOSH)	TWA 100 ppm300 mg/m3
		TWA 150 ppm450 mg/m3
PEL:	(OSHA)	TWA 100 ppm300 mg/m3
		TWA Methyl acrylate
AEL *	(DUPONT)	2 ppm 8 & 12 hr. TWA, Skin
TLV	(ACGIH)	2 ppm TWA
PEL:	(OSHA)	10 ppm35 mg/m3 TWA
REL	(NIOSH)	10 ppm35 mg/m3 TWA Tetrahydrofuran
AEL *	(DUPONT)	50 ppm 8 & 12 hr. TWA  75 ppm STEL, 15 minute TWA
TLV	(ACGIH)	50 ppm TWA 100 ppm STEL
PEL:	(OSHA)	200 ppm590 mg/m3 TWA
REL	(NIOSH)	200 ppm590 mg/m3 TWA 250 ppm735 mg/m3 TWA 2,5-Dimethyl-3-Hexyne-2,5-diol Caprolactam
TLV	(ACGIH)	5 mg/m3 TWA Vapor and aerosol, inhalable fraction.
PEL:	(OSHA)	5 mg/m3 TWA Respirable fraction. 15 mg/m3 TWA Total dust. 1 mg/m3

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		time weighted average	Dust.
		5 ppm20 mg/m3	
		time weighted average	Vapor.
		10 ppm40 mg/m3	
		Short term exposure limit	Vapor.
		3 mg/m3	
		Short term exposure limit	Dust.
TLV	(ACGIH)	5 mg/m3	
		TWA Inhalable fraction and vapor.	
REL	(NIOSH)	0.22 ppm1 mg/m3	
		TWA Vapor.	
		1 mg/m3	
		TWA Dust.	
		0.66 ppm3 mg/m3	
		TWA Vapor.	
		3 mg/m3	
		TWA Dust.	
		Methanol	
TLV	(ACGIH)	200 ppm	
		TWA	
		250 ppm	
		STEL	
PEL:	(OSHA)	200 ppm260 mg/m3	
		TWA	
AEL *	(DUPONT)	200 ppm 8 & 12 hr. TWA, Skin	
REL	(NIOSH)	200 ppm260 mg/m3	
		TWA	
		250 ppm325 mg/m3	
		TWA	
		Acetaldehyde	
AEL *	(DUPONT)	25 ppm 8 hr. TWA	
		50 ppm 15 minute TWA	
TLV	(ACGIH)	25 ppm	
		TLV-C	
PEL:	(OSHA)	200 ppm360 mg/m3	
		TWA	

Carbon black

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PEL:	(OSHA)	3.5 mg/m3	8 hr. TWA
TLV	(ACGIH)	3.5 mg/m3	TWA
AEL *	(DUPONT)	0.5 mg/m3	8 & 12 hr. TWA (Polynuclear Hydrocarbon content <0.1%) Includes Channel, Lamp, and Thermal Black.

\* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Form	: pellets
Color	: black
Odor	: acrylic-like
Melting point/range	: > 130 °C (> 266 °F)
Specific Gravity	: > 1
Water solubility	: insoluble

**SECTION 10. STABILITY AND REACTIVITY**

Stability	: Stable at normal temperatures and storage conditions.
Conditions to avoid	: Temperature > 270 °C (> 518 °F) Long hold up times. Abnormally long processing time or high temperatures can produce irritating and toxic fumes.
Incompatibility	: Strong acids Strong bases, Strong oxidizing agents
Hazardous decomposition products	: Hazardous thermal decomposition products may include: Organic acids, Aldehydes, Alcohols , Tetrahydrofuran , Carbon dioxide, Carbon monoxide, Acetic acid, 2-Methylpropene, Acetaldehyde, Formic acid, Acrolein, Propionaldehyde, 2-Methylpropan-2-ol, Methyl acrylate, 2,5-Dimethyl-3-Hexyne-2,5-diol, Methanol, Caprolactam
Hazardous reactions	: Polymerization will not occur.



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**SECTION 11. TOXICOLOGICAL INFORMATION**

DUPONT™ ETPV 60A01HSL BK001 engineering thermoplastic vulcanizates

Further information : No data is available on the product itself. For additional toxicity data, write to the company address or call the non-emergency number shown in Section 1.

Butylene Phthalate/Poly(Alkylene Ether) Phthalate Copolymer

Oral ALD : > 11,000 mg/kg , rat

Skin irritation : rabbit  
non-irritant

Skin sensitization : human  
There are rare or inconclusive reports of human skin sensitization.

guinea pig  
Not a skin sensitizer. The toxicological data has been taken from products of similar composition.

Carbon black

Oral ALD : > 25,100 mg/kg , rat

Skin irritation : animals (unspecified species)  
non-irritant

Eye irritation : animals (unspecified species)  
non-irritant

Skin sensitization : human  
There are no reports of human skin sensitization.

Repeated dose toxicity : Inhalation  
Lungs, Inflammation, Fibrosis

Carcinogenicity : An increased incidence of tumours was observed in some laboratory animals but not in others.  
Overall weight of evidence indicates that the substance is not carcinogenic.

Mutagenicity : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

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Evidence suggests this substance does not cause genetic damage in animals.

### tert-Butanol

- |                        |   |   |
|------------------------|---|---|
| Dermal LD50            | : | > 2,000 mg/kg , rabbit  |
| Oral LD50              | : | 3,046 mg/kg , rat   |
| Inhalation 4 h LC50    | : | > 29.4 mg/l , rat   |
| Skin irritation        | : | No skin irritation, rabbit  |
| Eye irritation         | : | Severe eye irritation, rabbit   |
| Skin sensitization     | : | guinea pig<br>Animal test did not cause sensitization by skin contact.<br><br>human<br>There are rare or inconclusive reports of human skin sensitization.  |
| Repeated dose toxicity | : | Inhalation<br>rat<br>Kidney effects, altered blood chemistry, Reduced body weight gain<br><br>Oral - drinking water<br>mouse<br>Pathologic changes in bladder, altered blood chemistry,<br>Incoordination, Abnormal posture, Hypoactivity |
| Carcinogenicity        | : | Animal experiments showed a statistically significant number of tumours.  |
| Mutagenicity           | : | Did not cause genetic damage in cultured bacterial cells.   |
| Teratogenicity         | : | Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.  |

### Methyl acrylate

- |                     |   |                      |
|---------------------|---|----------------------|
| Dermal LD50         | : | 1,250 mg/kg , rabbit |
| Oral LD50           | : | 768 mg/kg , rat      |
| Inhalation 4 h LC50 | : | 6.5 mg/l , rat       |



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Target Organs: Respiratory Tract  
Respiratory tract irritation

Skin irritation	: Severe skin irritation, rabbit
Eye irritation	: Severe eye irritation, rabbit
Skin sensitization	: Causes sensitization., mouse
Repeated dose toxicity	: Inhalation rat Respiratory tract irritation
Carcinogenicity	: Animal testing did not show any carcinogenic effects.
Mutagenicity	: Did not cause genetic damage in animals. Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others. Did not cause genetic damage in cultured bacterial cells.
Reproductive toxicity	: Animal testing showed no reproductive toxicity.
Teratogenicity	: Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.
Tetrahydrofuran	
Dermal LD50	: > 2,000 mg/kg , rat
Oral LD50	: 1,650 mg/kg , rat
Skin irritation	: slight irritation, rabbit
Eye irritation	: Severe eye irritation, rabbit
Skin sensitization	: Did not cause sensitization on laboratory animals., mouse
Repeated dose toxicity	: Inhalation rat No toxicologically significant effects were found.
Carcinogenicity	: Limited evidence of a carcinogenic effect.
Mutagenicity	: Evidence suggests this substance does not cause genetic damage in

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animals.  
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Reproductive toxicity : Animal testing showed no reproductive toxicity.

Teratogenicity : Animal testing showed no developmental toxicity.

### 2,5-Dimethyl-3-Hexyne-2,5-diol

Dermal LD50 : > 1,000 mg/kg , rabbit

Oral LD50 : > 500 mg/kg , rat

Skin irritation : Mild skin irritation, rabbit

Eye irritation : Mild eye irritation, rabbit

Skin sensitization : Causes sensitization., animals (unspecified species)

### Methanol

Dermal LDLO : 393 mg/kg , Monkey

Oral Acute toxicity estimate : 100 mg/kg

Oral LDLO : 143 mg/kg , human

Oral : multiple species  
narcosis  
Liver effects  
eye effects  
Central nervous system effects

Inhalation Acute toxicity estimate : 3 mg/l

Skin irritation : Mild skin irritation, rabbit

Eye irritation : Eye irritation, rabbit

Skin sensitization : guinea pig  
Not a skin sensitizer.

Repeated dose toxicity : Dermal  
multiple species



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mortality

Oral  
Monkey  
Blindness

- Mutagenicity** : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
- Teratogenicity** : Animal testing showed effects on embryo-foetal development at levels below those causing maternal toxicity.  
Foetal malformations  
Delayed foetal development (variations)  
Reduced growth

**Acetaldehyde**

- Dermal LD50** : 640 mg/kg , rat
- Oral LD50** : 660 mg/kg , rat
- Inhalation 4 h LC50** : 24 mg/l , rat
- Skin irritation** : Mild skin irritation, rabbit irritant
- Eye irritation** : Severe eye irritation, rabbit irritant
- Skin sensitization** : Positive in human patch test., human
- Repeated dose toxicity** : Oral - drinking water  
rat  
No toxicologically significant effects were found.
- Inhalation**  
rat  
No toxicologically significant effects were found.
- Carcinogenicity** : An increased incidence of tumours was observed in laboratory animals.
- Mutagenicity** : Did not cause genetic damage in cultured bacterial cells.  
Caused genetic damage in cultured mammalian cells.

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Caused genetic damage in animals.

### Caprolactam

Dermal LD50	:	1,410 mg/kg , rabbit Oedema Tremors
Oral LD50	:	930 mg/kg , mouse
Oral	:	rat Liver effects Gastrointestinal effects
Inhalation 4 h LC50	:	8.1 mg/l , rat Target Organs: Respiratory Tract Respiratory tract irritation eye effects
Skin irritation	:	irritant
Eye irritation	:	irritant
Skin sensitization	:	Causes sensitization., guinea pig
Repeated dose toxicity	:	Oral rat Abnormal decrease in number of red blood cells, Adverse body weight effects  Inhalation rat Nasal irritation, Reduced body weight gain, Spleen effects, Pathologic changes, Lungs
Carcinogenicity	:	Animal testing did not show any carcinogenic effects.
Mutagenicity	:	Animal testing did not show any mutagenic effects.
Reproductive toxicity	:	Animal testing did not show any effects on fertility.
Teratogenicity	:	Did not show teratogenic effects in animal experiments.



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**SECTION 12. ECOLOGICAL INFORMATION**

**Aquatic Toxicity**

Modified ethylene/methyl acrylate copolymer

: The substance is a polymer and is not expected to produce toxic effects.

Butylene Phthalate/Poly(Alkylene Ether) Phthalate Copolymer

: The substance is a polymer and is not expected to produce toxic effects.

Carbon black

: Aquatic toxicity is unlikely due to low solubility.

tert-Butanol

96 h LC50

: Pimephales promelas (fathead minnow) 6,410 mg/l

72 h EC50

: Desmodesmus subspicatus (green algae) > 1,000 mg/l

48 h EC50

: Daphnia magna (Water flea) 5,504 mg/l

Methyl acrylate

96 h LC50

: Oncorhynchus mykiss (rainbow trout) 3.4 mg/l

72 h ErC50

: Pseudokirchneriella subcapitata 3.55 mg/l

72 h EbC50

: Pseudokirchneriella subcapitata (green algae) 2.02 mg/l

48 h EC50

: Daphnia magna (Water flea) 2.6 mg/l

21 d

: NOEC Daphnia 0.19 mg/l  
Information given is based on data obtained from similar substances.

Tetrahydrofuran

96 h LC50

: Fathead minnow 2,160 mg/l

48 h LC50

: Daphnia magna (Water flea) 3,485 mg/l

33 d

: NOEC 216 mg/l

2,5-Dimethyl-3-Hexyne-2,5-diol

# Material Safety Data Sheet



## **DUPONT™ ETPV 60A01HSL BK001 engineering thermoplastic vulcanizates**

Version 2.0

Revision Date 12/06/2010

Ref. 130000021040

	24 h NOEC	: Fish (unspecified species) 5 mg/l
Methanol	96 h LC50	: Fathead minnow 28,100 mg/l
	48 h EC50	: Daphnia > 10,000 mg/l
Acetaldehyde	96 h LC50	: Pimephales promelas (fathead minnow) 30.8 mg/l
	48 h EC50	: Daphnia magna (Water flea) 48.3 mg/l
Caprolactam	96 h LC50	: Pimephales promelas (fathead minnow) 1,400 mg/l
	48 h EC50	: Daphnia magna (Water flea) 2,430 mg/l
Environmental Fate		
Methyl acrylate	Biodegradability	: Readily biodegradable.
	Bioaccumulation	: Bioaccumulation is unlikely.
Additional ecological information		: No data is available on the product itself. Toxicity is expected to be low based on insolubility in water.

### **SECTION 13. DISPOSAL CONSIDERATIONS**

Waste Disposal	: Preferred options for disposal are recycling, incineration with energy recovery, and landfill. The high fuel value of this product makes incineration very desirable for material that cannot be recycled. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations.
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### **SECTION 14. TRANSPORT INFORMATION**

# Material Safety Data Sheet



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Not classified as dangerous in the meaning of transport regulations.

### **SECTION 15. REGULATORY INFORMATION**

- |  |   |  |
|--|---|--|
| TSCA Status                            | : | In compliance with TSCA Inventory requirements for commercial purposes.  |
| SARA 313 Regulated Chemical(s)         | : | SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.  |
| California Prop. 65                    | : | WARNING! This product contains a chemical known to the State of California to cause cancer. Carbon black<br>The State of California, under Proposition 65, regulates Carbon Black - airborne, unbound particles of respirable size as a carcinogen. In this product, carbon black is not supplied in the form regulated in California. |
| PA Right to Know Regulated Chemical(s) | : | Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for Special Hazardous Substances): None known.  |
| NJ Right to Know Regulated Chemical(s) | : | Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): None known.  |

### **SECTION 16. OTHER INFORMATION**

- |                      |   |  |
|----------------------|---|--|
| Restrictions for use | : | Do not use DuPont materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under a written contract that is consistent with DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative. You may also request a copy of the DuPont POLICY Regarding Medical Applications H-50103-3 and DuPont CAUTION Regarding Medical Applications H-50102-3. |
|----------------------|---|--|

DuPont™ ETPV is a trademark of E. I. du Pont de Nemours and Company.



**DUPONT™ ETPV 60A01HSL BK001 engineering thermoplastic vulcanizates**

Version 2.0

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Ref. 130000021040

The DuPont Oval Logo is a registered trademark of E.I. du Pont de Nemours and Company. Read the product information datasheet for this product or the molding guide for this resin family.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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Packages up to 150 lbs.

4a Express Package Service \* To most locations.  
☐ FedEx Priority Overnight Next business morning. \* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☐ FedEx Standard Overnight Saturday Delivery NOT available.  
☐ FedEx Express Saver Second business day. \* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☐ FedEx 1Day Freight Next business day. \* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☐ FedEx 2Day Freight Second business day. \* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☐ FedEx 3Day Freight Third business day. \* Saturday Delivery NOT available.

Packages over 150 lbs.

4b Express Freight Service \*\* To most locations.  
☐ FedEx 1Day Freight Next business day. \* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☐ FedEx 2Day Freight Second business day. \* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☐ FedEx 3Day Freight Third business day. \* Saturday Delivery NOT available.

5 Packaging

☐ FedEx Envelope \*  
☐ FedEx Pak \* Includes FedEx Small Pak and FedEx Large Pak.  
☐ FedEx Box  
☐ FedEx Tube  
☐ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery  
☐ NOT available for FedEx Standard Overnight, FedEx Express Saver, or FedEx 3Day Freight.  
☐ Direct Signature Someone at recipient's address may sign for delivery. **Fee applies.**  
☐ Indirect Signature Inmate or someone at a neighboring address may sign for delivery. **Fee applies.** residential deliveries only. **Fee applies.**

Does this shipment contain dangerous goods?

☒ No ☐ Yes  
One box must be checked.  
☐ No ☐ Yes  
As per attached Shipper's Declaration. Not required.  
Dangerous goods (including explosives) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.  
☐ Dry Ice ☐ Cargo Aircraft Only

7 Payment Bill to:

Sender ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check  
Enter FedEx Acct. No. or Credit Card No. below. Obtain receipt. Acct. No.

Total Packages

Total Weight

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